

Walter Miles and His 1920 Grand Tour of
European Physiology and Psychology Laboratories

THE CENTER FOR THE HISTORY OF PSYCHOLOGY SERIES

The Center for the History of Psychology Series

David B. Baker, Editor

C. James Goodwin and Lizette Royer, Editors, *Walter Miles and His 1920
Grand Tour of European Physiology and Psychology Laboratories*

Walter Miles and His 1920 Grand Tour of
European Physiology and Psychology Laboratories

Walter Miles

Edited by C. James Goodwin and Lizette Royer

A REPRODUCTION OF THE ORIGINAL TYPESCRIPT,
WITH A FOREWORD BY DAVID B. BAKER AND
AN INTRODUCTION BY C. JAMES GOODWIN



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Foreword

David B. Baker

It is a pleasure to introduce the inaugural volume in the Center for the History of Psychology Series. This series is the realization of a long-held goal to make the historical treasure located within the Archives of the History of American Psychology more accessible. The timing could not be better. In its forty-fifth year of operation, the Archives of the History of American Psychology is undergoing dramatic growth and expansion. The publication of this volume coincides with the opening of the new Center for the History of Psychology at The University of Akron. The center provides expanded space for the Archives of the History of American Psychology, a museum, and ample room for expansion. With these changes comes a greater opportunity to educate the public about the science and practice of psychology, while maintaining the core mission of promoting research in the history of psychology.

The Center for the History of Psychology Series is designed to highlight unpublished works of historical significance and interest. The first offering was an easy choice. The Walter R. and Catharine Cox Miles Papers were one of the earliest acquisitions of the Archives of the History of American Psychology and they certainly have stood the test of time. The collection, which includes more than 43 linear feet of material, is a tour de force in the history of American psychology. From the laboratory to the field, Walter and Catharine Cox Miles sampled most of the terrain of twentieth century psychology in America. Walter Miles was fastidious in his observations and had the good sense to safely keep and protect his own archival record.

This facsimile reproduction of his 1920 trip to Europe offers a rare firsthand account of the work of early twentieth century physiology and psychology laboratories. Reading over the observations and reflections, which are richly supplemented with photographs, it is easy to transport back in time and join Miles on his visit 90 years ago. The details are rich, the personal insights and interactions revealing, and the value to the historical record priceless. There is something here for everyone interested in the history of human science.

Editors C. James Goodwin and Lizette Royer have done wonderful work providing the “bookends” for this facsimile. Their work provides important context that makes this volume readily accessible. A special thank you to AHAP student assistant Andrew White for scanning the manuscript. Acknowledgments are also due to the University of Akron Press. Their enthusiasm and support for this series is deeply appreciated.

Introduction

C. James Goodwin

In April 1920, the American experimental psychologist Walter R. Miles, then a young research scientist at the Carnegie Nutrition Laboratory in Boston, embarked on a remarkable four and a half month voyage to Europe. His goal was to visit laboratories of physiology and psychology in Great Britain and on the continent, reestablishing links that had been fractured during World War I. Between April 1920 and his return the following August, Miles visited 57 laboratories and institutes, and 9 different countries (one of them, Switzerland, was for a three-day holiday just before his return to Boston). He also attended and made presentations on apparatus of his invention to a meeting of the British Psychological Association at Cambridge and to an international conference for physiologists in Paris. Miles kept extensive records during his grand tour, converting them into a highly detailed *Report of a Visit to Foreign Laboratories: April to August, 1920*, now part of the Walter R. and Catharine Cox Miles collection in The Archives of the History of American Psychology at The University of Akron. In addition to the narrative, Miles included in his report dozens of photos and postcards accumulated during the trip. Including pages with photos or postcards attached, the report runs to more than 300 pages.

The Miles report paints a detailed and telling portrait of the state of European physiology and psychology in the years immediately after World War I. This monograph reproduces that report in facsimile form. In addition, the narrative is accompanied by a detailed outline summarizing the tour, and brief biographical portraits of the major physiologists and psychologists visited by Miles.

Walter R. Miles (1885–1978): A “Lab Man”

Walter Miles was the prototypical psychological scientist. He made important contributions to a variety of research areas in experimental psychology, was skilled as an apparatus inventor, and was happiest when immersed in the daily minutiae of laboratory life. His scientific interests were eclectic, ranging from basic research on maze learning to applied research on the physiological and psychological effects of alcohol consump-

tion, and his projects often followed directly from his fascination with research apparatus (Goodwin, 2003). His lifelong devotion to the laboratory was recognized by a colleague who wrote that Miles was “one of the few psychologists who started out as an experimentalist and continued his interest in scientific problems all during his career, stopping neither to become a philosopher or a stamp collector or a huckster of psychological wares” (Helson, 1953). In the jargon of the day, Miles was widely recognized as a “lab man.”

Miles earned his doctorate in psychology in 1913 at the University of Iowa, a student of Carl Seashore, who was well-known for his research on auditory perception and the experimental psychology of music. Miles’s dissertation, on voice accuracy during pitch singing, bore the Seashore stamp. The Iowa experience also nurtured in Miles his love of research apparatus—in an obituary, Ernest Hilgard (1980) noted that Miles was “delighted with the tonoscope that Seashore had invented, and his fascination with gadgetry ... was now fixed for life” (p. 565). During his years at Iowa, Miles also worked as a pastor at a nearby Friends Church. Miles had been raised as a Quaker and never wavered in his faith. As will be seen in the account of his European trip, the Quaker connection enabled Miles to travel to several locations in Germany that he otherwise would not have been able to visit (at the time of the Miles trip, the United States had not signed a peace treaty with Germany).

Miles’s first academic appointment was a temporary one, a one-year replacement for Raymond Dodge, another noted experimental psychologist who became a life-long friend and mentor. Dodge taught at Wesleyan College in Connecticut, but was about to spend a year on leave at the Carnegie Nutrition Laboratory. On Dodge’s recommendation, Miles replaced him at Wesleyan. When Dodge’s year was up, he urged officials at the Nutrition Lab to have Miles replace him in Boston, and this led to an eight-year stint (1914–1922) for Miles as a research scientist at the Carnegie Lab. There he developed a close relationship with the director, Francis Benedict (1870–1957), and became involved with projects on the adverse effects of (a) alcohol and (b) reduced and inadequate nutrition.

Near the end of his time at Carnegie, Miles began to miss the academic environment he had briefly sampled at Wesleyan. When an opportunity to teach at Stanford University arose, Miles jumped at it and spent the next decade (1922–1932) at the Palo Alto campus. It was in California in 1925 that his first wife died, and where he subsequently met his second wife, Catharine Cox. Cox was a student of Lewis Terman, involved with Terman’s famous longitudinal study of genius (Terman, 1925). It was Cox who completed the well-known study in which IQ estimates were made of important historical figures (Terman, Cox, et al., 1930); it was her doctoral dissertation.

Walter Miles flourished at Stanford, developing a research program that, typically for him, encompassed a variety of topics. These included the measurement of eye move-

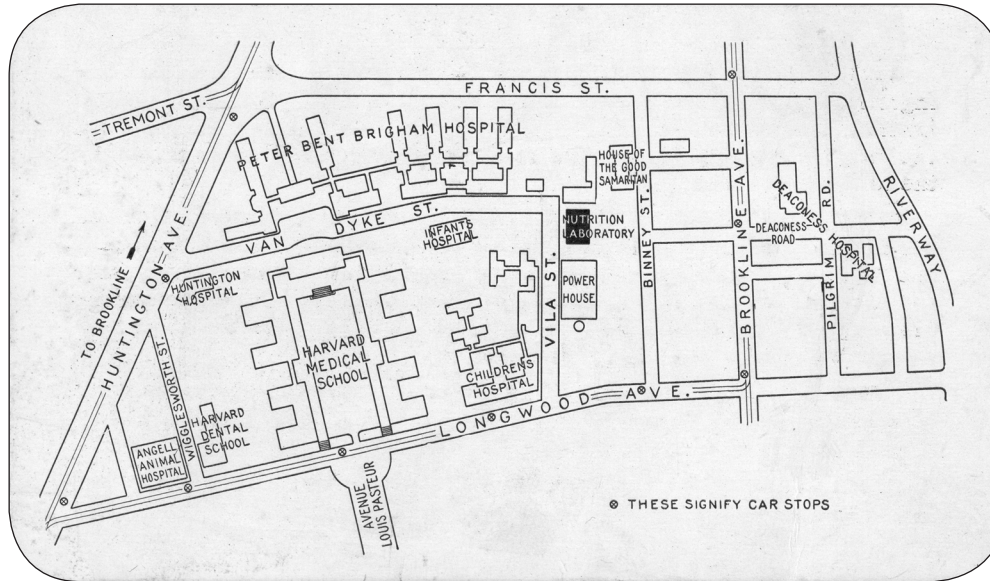
ments, the study of maze learning in rats (including the invention of several types of mazes), and the assessment of age-related changes in various cognitive and behavioral factors (the Stanford Later Maturity Project). His continuing fascination with research apparatus is evident in his observation that a “piece of apparatus designed to provide a task for a human subject and to give a score or measurable record of his performance seems to me to offer a standing invitation to research curiosity” (Miles, 1967, p. 235). Miles was developing a national reputation among his peers, as his 1932 election to the presidency of the American Psychological Association demonstrates. As a member of the prestigious Society of Experimental Psychologists, Miles won the coveted Warren Medal in 1949 in recognition of the excellence of his research.

In the early 1930s, Raymond Dodge once again entered Miles’s life, convincing his colleague and protégée to return to the east coast. Dodge, then on the faculty at Yale University’s Institute of Human Relations, was nearing the end of his career and was increasingly disabled by Parkinson’s disease. Wishing to insure that his laboratory would be in good hands, he prevailed on the Yale administration to recruit Miles. Catharine was also given a position in the medical school at Yale. The Mileses stayed at Yale for just over twenty years, from 1932 to 1953. Miles retired at Yale’s mandatory retirement age of 68, but he remained active—in 1954, just entering his seventies, he took a three-year visiting professor position at the University of Istanbul, successfully establishing a psychology laboratory there (Miller, 1980). Miles died in 1978 at the age of 93.

Miles at the Carnegie Nutrition Laboratory

Steel magnate and philanthropist Andrew Carnegie founded the Carnegie Institute in Washington (www.ciw.edu) in 1902, its purpose being to provide financial support for scientific research. One of earliest scientists to be funded by the Carnegie was the chemist and physiologist Wilbur Atwater (1844–1907) of Wesleyan University in Connecticut. Starting in 1903, Atwater received regular grants from the Carnegie Institute, enabling him to carry on detailed studies of metabolic processes in humans. Much of the funding went into the construction of a highly sophisticated “respiration calorimeter,” a chamber large enough to hold a reclining human subject, and the primary apparatus for Atwater’s research on metabolism. The device was designed to measure the relationship between energy intake (through food and drink) and the resulting metabolic effects in the body. Atwater was aided in his research at Wesleyan by Francis Benedict (1870–1957), who also had training in chemistry and physiology.

In 1906, the Carnegie Institute significantly increased its support of Atwater and Benedict, approving the building of a separate laboratory for their research—the Carnegie Nutrition Laboratory. It was to be located in Boston, within a block of Harvard



The Nutrition Laboratory of the Carnegie Institution of Washington is located at the corner of Vila and Van Dyke Streets, Fenway District, one minute from Longwood Avenue and three minutes from Huntington Avenue. It may be reached in about twenty minutes by the following routes:

From Park Street Subway Station: (1) Take Longwood Avenue car to corner of Longwood Avenue and Vila Street. The Laboratory is at the end of Vila St. (2) Take any Huntington Avenue car running to Brookline Village, or a South Huntington Avenue car, to corner of Huntington Avenue and Van Dyke Street. The Laboratory is at the end of Van Dyke Street on Vila Street.

From Back Bay Station: Any of the cars mentioned above may be taken at Copley Square, which can be reached from the Back Bay Station by a short walk on Dartmouth Street.

From Huntington Avenue Station: Cars by either route referred to above may be taken on Huntington Avenue.

Figure 1. Location of the Carnegie Nutrition Laboratory in Boston.

Medical School and Peter Bent Brigham Hospital. Ground was broken for the construction of a modern three story building in summer 1907 and the lab opened in February of 1908. Figure 1, from a card in the Miles papers, shows its location and provides directions from various points in Boston.



Figure 2. The pursuit meter, created by Miles to measure hand-eye coordination.

Unfortunately, Atwater did not live to see the completion of the Boston lab. He died in 1907, and Benedict was named the laboratory's director. For Benedict, the work of the Nutrition Lab became his life's passion—he directed the laboratory for 30 years until his 1937 retirement. From the start, Benedict developed close ties with physiologists in Europe, making his first tour of European laboratories in 1907. These tours continued with some regularity over the years—two boxes in Benedict papers at the Countway Library of Medicine (Harvard Medical School) contain “Reports of Visits to Foreign Laboratories, seven volumes, 1907–1933” (Finding Aid, Benedict papers). The Miles European visit in 1920, then, was part of the Nutrition Laboratory's general practice of maintaining direct contact with European science.

By 1915, the second year in residence for Miles, the Nutrition Laboratory had a staff of 25 (Nutrition Laboratory, 1915), and it was fully immersed in its program of research to examine “the physiological effects of various nutrients upon the human body” (Benedict, 1915, p. 75). The laboratory housed four different calorimeters, including two large enough to hold exercise equipment (e.g., the 1915 version of a stationary bicycle, called a bicycle ergometer), enabling research on the effects of muscular exer-

cise on respiration and metabolism. The laboratory also investigated “the influence of alcohol upon the metabolic, neural and muscular processes” (p. 82). Miles was deeply involved in this research throughout his tenure at Carnegie, producing several papers (Miles 1916, 1918) and a long monograph (Miles, 1924) on the effects of low doses of alcohol on various physiological and psychological measures. Miles also spent considerable time investigating the effects of “under-nutrition” on human physiology and behavior, showing that diets severe enough to produce a 12% weight loss resulted in a variety of adverse cognitive and behavioral consequences (Miles, 1918).

Consistent with his life-long fascination with apparatus, Miles developed several pieces of equipment in conjunction with his alcohol and nutrition research. These included the pursuit pendulum (Miles, 1920a), pursuit-meter (Miles, 1921), and the ataxiometer (Miles, 1922). The first two required close attention and hand-eye coordination and the third measured body-sway and general steadiness while standing. With the pursuit-meter (Figure 2), the subject had to move a dial to keep a visual stimulus within a crosshair that was constantly moving. It was a forerunner of the modern pursuit rotor apparatus.

During his time in Boston, Miles developed a close and congenial working relationship with Benedict. The friendship lasted well beyond Miles’s departure for Stanford in 1922. The strength of the relationship can be discerned from a letter Benedict wrote at the time of his 1937 retirement. In part, it read,

As I look back over the three decades that the Nutrition Laboratory has been running, naturally I think a great deal of our experiences together. . . . When you left to go to California I was literally heart-broken . . .

Quite aside from your understanding, keenness of mind, indefatigable energy, and enthusiasm I have felt that we were in as nearly perfect rapport as any two men could be. . . . The imprint you left upon the Nutrition Laboratory, on scientific activity and on me and my scientific thought in designing powers and even expression has been greater than with any other one man I know. (Benedict, 1937)

When it came time for one of the Carnegie researchers to visit Europe in 1920, it is no surprise that Benedict chose his trusted colleague Walter Miles. The trip was especially important because World War I had seriously disrupted both European science and the normal lines of scientific communication among those in different countries. For Miles the trip was of great value because he would be meeting many prominent scientists for the first time. Also, it would give him a direct look at laboratories in other countries and enable him to see, first-hand and in actual operation, research apparatus he only had read about in journals. As a “lab man,” this trip was a dream come true for Miles.

Miles and His Grand Tour of Europe

When Miles sailed for Europe on April 11, 1920, World War I had been over for only a year and a half, and the wounds were still raw. Although the battlefields of the war in Western Europe occupied a relatively small geographical area—large portions of Belgium and northern France—the war produced unprecedented loss of life, devastated the economies of the countries in the region, and the 1919 Paris peace conference perpetuated resentments that led to World War II just twenty years later (MacMillan, 2001). Among the scientists that Miles met on his trip, some lingering hostility was evident. As you will read in his account, for example, it is clear that French and German scientists were not likely to be research collaborators for some time.

The war also had direct effects on the research conducted by the scientists Miles visited. In England, for instance, several of the scientists he met were frustrated by the difficulty they were having in re-establishing their programs of research. Funding was part of the problem, but a major issue was the return of large numbers of soldiers who wished to pursue higher education. In many universities, professors had to cope with large classes and in some cases, the conversion of their precious laboratory space to instructional space. The war also affected the nature of some of the research Miles learned about—several of the researchers had been diverted from their normal research programs to become involved in war-related projects, such as the selection of pilots for the just-developing air forces, the use of sound localization methods to detect artillery positions at the front, or the application of perceptual research to the design of camouflage.

In addition to the Miles *Report of a Visit*, the Miles papers at Akron also include considerable other information about his trip—diaries, calendars, and a long series of letters written by Miles after the trip, following up with all of his new international colleagues. An overview of his itinerary can be discerned from this letter that Miles wrote to Dodge upon his return to Boston. The tour, Miles wrote, included

one month in England, three weeks in Paris, a week in Belgium, two in Holland, a week each in Denmark and Sweden, and shorter times in Switzerland, Germany, and Austria. In the latter two places, I visited practically only the relief work of Quakers ... It was my observation that the Germans and Austrians bore no hatred toward the Americans. (Miles, 1920)

It appears that Miles had some control over his itinerary, being sure to visit as many psychology laboratories as he could. Pre-World War I Carnegie trips to Europe only included stops at laboratories devoted to physiology, pharmacology, and chemistry, or connected with medical schools (even visits to Pavlov's laboratory at the Institute for Experimental Medicine in St. Petersburg in 1907, 1910, and 1913 were considered visits to physiology labs, and Pavlov never considered himself a psychologist). Miles, however,

W. R. Miles in account with Nutrition Laboratory for money appropriated for
books and apparatus.

Account divided into two parts: A and B.

A. The Nutrition Laboratory entrusted me in February ¹⁹²⁰ with \$150 with which to buy French money to use for the Laboratory on my foreign trip in purchasing books or apparatus ^{for} other laboratory expenses.

March 2, 1920. With the \$150 I bought 2107 French francs of .0712 cents per frank.

<u>June 8, 1920.</u>	Nitrate of silver, 100 grams	37.00 francs
<u>June 8, 1920.</u>	Book of Laboratory receipts	6.00 "
<u>June 8, 1920.</u>	Wood metal, especially recommended by Dr. Bull	6.00 "
	Postage on pamphlets sent to Boston	5.00 "
<u>June 11, 1920</u>	Postage from Belgium on pamphlets to Boston	5.00 "
	Rubber bulb for camera	1.50 "
<u>July 20, 1920</u>	1 Bouliett meter, especially recommended by Professor Dreyer and Waller	325.00 "
	Packing and carriage charges on Bouliett meter	27.50 "
<u>August 11, 1920</u>	Stamps to send reprints to Boston	9.00 "
<u>August 17, 1920</u>	For copying German manifesto	22.50 "
<u>June and July</u>	Photograph expense aside from that paid for in Marks in Germany \$21.39 which equals	<u>300.00 marks</u>

Total number of francs spent for the Laboratory is 744.50. The remainder, that is, 1362.50 francs used by W. R. Miles since they were not needed to buy apparatus or books. W. R. Miles therefore owes the Laboratory \$97.01 on this account.

Figure 3. Budgets. Converting dollars to francs and marks.

while scheduling return trips to many of the labs seen in the earlier Carnegie visits, also included laboratories of experimental psychology on his trip—he visited psychologists in London, Edinburgh, Glasgow, Cambridge, Oxford, Paris, Groningen, Copenhagen, and Leipzig. He also attended a meeting of the British Psychological Association.

Miles was known for making meticulous records of all of his activities, and seldom discarding any of his documents (Goodwin, 2003)—the Miles papers at Akron include 128 boxes (70 linear feet) and a highly detailed 756-page finding aid. An example of his attention to detail (and his essential frugality) can be seen in the records Miles kept of his costs during the trip. The Laboratory advanced him \$350 to be converted into foreign currency and used to purchase books and laboratory materials during his time in Europe. For example, the documents in Figure 3 shows that Miles used \$150 of

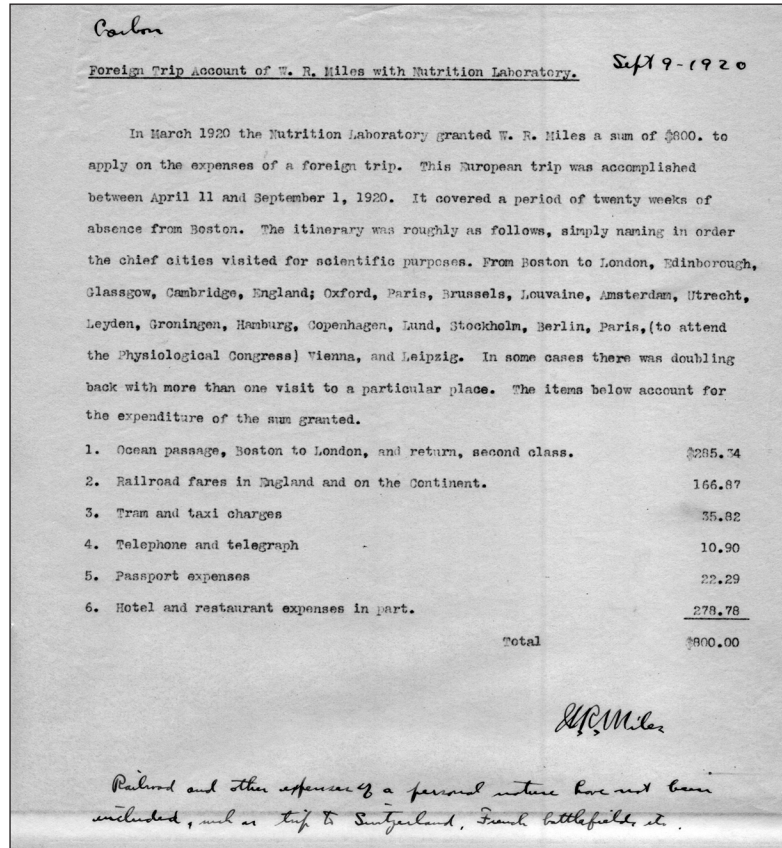


Figure 4. Budgets. Overall cost of the Miles visit (\$800).

this money to buy 2,107 French francs and the remaining \$200 to buy 18,348 German marks. These funds he spent on items ranging from 100 grams of nitrate of silver to a “Bouliett meter” to photographic film and developing. On his return, Miles paid back the funds he had not spent (\$109.44 of the original \$350). As for travel costs, Figure 4 shows that the European tour cost the Nutrition Laboratory \$800 (just over \$8500 in 2008 dollars). That Miles tried to keep his travel costs at a minimum is evident from his decision to sail in “second class” at a cost of about \$100 each way.

Costs not related to the trip’s primary purpose Miles bore himself—the handwritten note at the bottom of Figure 4 shows that Miles used his own money for side trips. These included a brief and pleasurable visit to Switzerland and a more sobering one to the battlefield at Verdun, France, which he described in his diary: “country swept clean, dreadfully pockmarked ... we go into a dugout and wander their passages ... I

find machine gun nest and several rifle shells; hand grenades, rifle barrel,... shrapnel and grenades, gas mask” (Miles, 1920b). Item 6 in the Miles expense page makes it clear that, in order to keep within his \$800 budget, Miles used his own money to cover some of the hotel and restaurant costs. He was able to save some money by staying at the homes of several of the researchers he encountered during the trip.

Upon his return to Boston, Miles prepared the following account, and corresponded with many of the scientists he had met during the trip. In many of these letters, Miles included copies of photos that he had taken—his fascination with photography just one more reflection of his love of apparatus and the technology of his day. Many of these photos are reproduced in the report.

One final point about the report is that it evidently was not one of those accounts subsequently filed away, never to be seen again. Instead, handwritten notes in the margins (not in Miles’s handwriting) make it clear that the report was readily available to Carnegie researchers and referred to in subsequent years, with information occasionally updated. At several places in the manuscript, for instance, notes appear, usually referring to the subsequent deaths of researchers visited by Miles (e.g., page 248 refers to the 1949 death of August Krogh).

In Sum

The European trip made by Walter Miles in the spring and summer of 1920 was of great importance to the Carnegie Nutrition Laboratory. World War I had seriously disrupted Carnegie’s contact with its European counterparts, and it was up to Miles to determine the current status of these laboratories, gauge the effects of the war on research productivity, and reestablish contact, with the eventual aim of rebuilding the kind of collaborative research that had existed prior to the war. That Miles was thorough in his assessment of the laboratories he visited is an understatement, as you will see for yourself as you read through the manuscript. You might consider starting the *Miles Report of a Visit* with the final section. In his “General Remarks” (page 299), Miles briefly describes prior visits to European laboratories by Benedict and other Carnegie staff, explains the reasons why his visit was important, and describes some of the highlights of the trip.

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